IPAC
Extract – Executive Summary of the FCC order of 4-22-2002
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In the matter of	)	
	)	
Revision of Part 15 of the Commission's Rules	)	
Regarding Ultra-Wideband Transmission	)	ET Docket 98-153
Systems	)	

FIRST REPORT AND ORDER

Adopted: February 14, 2002 Released: April 22, 2002

< Main body of report deleted – Go to www.fcc.gov for full report. >

II. EXECUTIVE SUMMARY

4. Upon consideration of the record, we continue to believe that UWB technology offers significant benefits for Government, public safety, businesses and consumers. However, we recognize that these substantial benefits could be outweighed if UWB devices were to cause interference to licensed services and other important radio operations. Our analysis of the record and the various technical studies submitted indicate that UWB devices can be permitted to operate on an unlicensed basis without causing harmful interference provided appropriate technical standards and operational restrictions are applied to their use.

5. To ensure that UWB devices do not cause harmful interference, this Order establishes different technical standards and operating restrictions for three types of UWB devices based on their potential to cause interference. These three types of UWB devices are: 1) imaging systems including Ground Penetrating Radars (GPRs) and wall, through-wall, surveillance, and medical imaging devices, 2) vehicular radar systems, and 3) communications and measurement systems. Generally, we are adopting unwanted emission limits for UWB devices that are significantly more stringent than those imposed on other Part 15 devices; limiting outdoor use of UWB devices to imaging systems, vehicular radar systems and hand held devices; and, limiting the frequency band within which certain UWB products will be permitted to operate. The frequency band of operation is based on the –10 dB bandwidth of the UWB emission. This combination of technical standards and operational restrictions will ensure that UWB devices coexist with the authorized radio services without the risk of harmful interference while we gain experience with this new technology. In the meantime, we plan to expedite enforcement action for any UWB products found to be in violation of the rules we are adopting and will act promptly to eliminate any reported harmful interference from UWB devices. Specifically, the Order takes the following actions:

• ***Imaging Systems***: Provides for the operation of GPRs and other imaging devices under Part 15 of the Commission's rules subject to certain frequency and power limitations. All imaging systems are subject to coordination with NTIA through the FCC. NTIA has indicated that coordination will be as expeditious as possible, requiring no longer than 15 business days, and may be expedited in emergency situations. The operators of imaging devices must be eligible for licensing under Part 90 of our rules, except that medical imaging devices may be operated by a licensed health care practitioner. Imaging systems include:

• ***Ground Penetrating Radar Systems*:** GPRs must be operated below 960 MHz or in the frequency band 3.1-10.6 GHz. GPRs operate only when in contact with, or within close proximity of, the ground for the purpose of detecting or obtaining the images of buried objects. The energy from the GPR is intentionally directed down into the ground for this purpose. Operation is restricted to law enforcement, fire and rescue organizations, to scientific research institutions, to commercial mining companies, and to construction companies.

• ***Wall Imaging Systems*:** Wall imaging systems must be operated below 960 MHz or in the frequency band 3.1-10.6 GHz. Wall-imaging systems are designed to detect the location of objects contained within a "wall," such as a concrete structure, the side of a bridge, or the wall of a mine. Operation is restricted to law enforcement, fire and rescue organizations, to scientific research institutions, to commercial mining companies, and to construction companies.

• ***Through-wall Imaging Systems*:** These systems must be operated below 960 MHz or in the frequency band 1.99-10.6 GHz. Through-wall imaging systems detect the location or movement of persons or objects that are located on the other side of a structure such as a wall. Operation is limited to law enforcement, fire and rescue organizations.

• ***Surveillance Systems*:** Although technically these devices are not imaging systems, for regulatory purposes they will be treated in the same way as through-wall imaging systems used by police, fire and rescue organizations and will be permitted to operate in the frequency band 1.99-10.6 GHz. Surveillance systems operate as "security fences" by establishing a stationary RF perimeter field and detecting the intrusion of persons or objects in that field. Operation is limited to law enforcement, fire and rescue organizations, to public utilities and to industrial entities.

• ***Medical Systems*:** These devices must be operated in the frequency band 3.1-10.6 GHz. A medical imaging system may be used for a variety of health applications to "see" inside the body of a person or animal. Operation must be at the direction of, or under the supervision of, a licensed health care practitioner.

• ***Vehicular Radar Systems*:** Provides for the operation of vehicular radar in the 22-29 GHz band using directional antennas on terrestrial transportation vehicles provided the center frequency of the emission and the frequency at which the highest radiated emission occurs are greater than 24.075 GHz. These devices are able to detect the location and movement of objects near a vehicle, enabling features such as near collision avoidance, improved airbag activation, and suspension systems that better respond to road conditions. Attenuation of the emissions below 24 GHz is required above the horizontal plane in order to protect space borne passive sensors operating in the 23.6-24.0 GHz band.

• ***Communications and Measurement Systems*:** Provides for use of a wide variety of other UWB devices, such as high-speed home and business networking devices as well as storage tank measurement devices under Part 15 of the Commission's rules subject to certain frequency and power limitations. The devices must operate in the frequency band 3.1-10.6 GHz. The equipment must be designed to ensure that operation can only occur indoors or it must consist of hand held devices that may be employed for such activities as peer-to-peer operation.